

The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

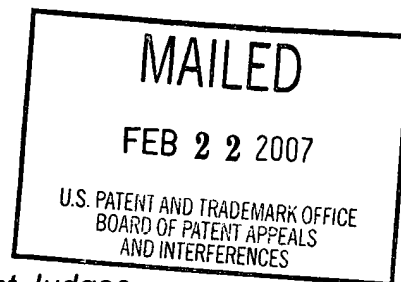
UNITED STATES PATENT AND TRADEMARK OFFICE

**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Ex parte Michael J. Chaloner, Richard Lynn Gardner Jr., and Paul C. Coffin

Appeal No. 2006-2284
Application No. 09/912,211

ON BRIEF



Before BARRY, SAADAT, and HOMERE, *Administrative Patent Judges*.

BARRY, *Administrative Patent Judge*.

A patent examiner rejected claims 23, 24, 26-37, 42, and 44-52. The appellants appeal therefrom under 35 U.S.C. § 134(a). We affirm-in-part.

I. BACKGROUND

The invention at issue on appeal concerns object identification. (Spec. at 1.) When storing distinguishable objects such as tape cartridges within a defined area "in which various object removal and replacement opportunities exist, it is generally desirable to provide a mechanism for identifying those objects present within the defined area." (*Id.* at 2.)

Accordingly, the appellants' invention transmits a signal toward a region of interest. Upon receiving energy reflected from the region, the invention establishes a baseline field strength for the energy. It then determines at least one frequency at which the field strength substantially differs from the baseline and identifies at least one object within the region based on the determined frequency. (*Id.* at 3.)

A further understanding of the invention can be achieved by reading the following claims.

23. A container comprising:

object presence detection equipment internal to said container, said equipment comprising at least one transmitter of transmitted signal energy and a plurality of fixed receivers of received signal energy;

a set of objects for object presence detection internal to said container, such that an object of said set of objects is operable to modify said transmitted signal energy of a selected frequency to generate said received signal energy of said selected frequency, wherein said set of objects is disposed in a configuration selected from a linear array, a two-dimensional array, and a three-dimensional array; and

a container wall substantially surrounding said object presence detection equipment and said set of objects, said wall operable to shield said equipment and said set of objects from extraneous external signals.

33. A method for identifying a subset of objects within a set of objects in a container, said method comprising:

transmitting a signal of a selected frequency within said container;

modifying said transmitted signal at said selected frequency by at least one object of said set of objects, wherein said at least one object is a member of said subset, and wherein said subset comprises a plurality of said objects responsive to said selected frequency;

receiving said modified signal within said container;

analyzing and processing said received signal; and

shielding the interior of said container from extraneous external signals.

51. The method of claim 33 wherein said analysis determines the number of members of said subset present within said container.

Claims 23, 24, 26-29 and 32 stand rejected under 35 U.S.C. § 103(a) as obvious over U.S. Patent No. 5,963,134 ("Bowers"); U.S. Patent No. 6,600,418 ("Francis"); and U.S. Patent No. 6,204,764 ("Maloney "). Claim 30 stands rejected under § 103(a) as obvious over Bowers; Francis; Maloney; and U.S. Patent No. 6,104,311 ("Lastinger"). Claim 31 stands rejected under § 103(a) as obvious over Bowers; Francis; Maloney; and U.S. Patent No. 5,581,257 ("Greene"). Claims 33-37, 42, 44-47, 50, and 51 stand rejected under § 103(a) as obvious over Bowers and Francis. Claim 48 stands rejected under § 103(a) as obvious over Bowers, Francis, and Lastinger. Claim 49 stands rejected under § 103(a) as obvious over Bowers, Francis, and Greene. Claim 52

stands rejected under § 103(a) as obvious over Bowers; Francis; Maloney; and U.S. Patent No. 5,995,019 ("Chieu").

II. OPINION

Our opinion addresses the claims in the following order:

- claims 23, 24, 26-32, 42, and 44-50
- claims 33-37, 51, and 52.

A. CLAIMS 23, 24, 26-32, 42, AND 44-50

"Rather than reiterate the positions of the examiner or the appellants *in toto*, we focus on a point of contention therebetween." *Ex parte Sienel*, No. 2005-2429, 2006 WL 1665423, at *1 (B.P.A.I. 2006). The examiner asserts, "Bowers et al. . . . teaches . . . to modify the transmitted signal energy of a selected frequency to generate the received signal energy of the selected frequency by resonating at the resonant frequency of the tag (col. 8 lines 36-43, col. 8 lines 54-60)." (Examiner's Answer at 3.)

The appellants make the following argument.

Bowers teaches that its RFID tags change their resonant frequency before retuning a signal so that the RFID tags return a signal with a frequency different from that received. See *Bowers* at Col. 8, lines 54-63. Accordingly, *Bowers* does not teach or suggest "an object of said set of objects is operable to modify said transmitted signal energy of a selected

frequency to generate said received signal energy of said selected frequency," as claimed.

(App. Br.¹ at 8.)

"In addressing the point of contention, the Board conducts a two-step analysis. First, we construe the independent claims at issue to determine their scope. Second, we determine whether the construed claims would have been obvious."

Ex Parte Cuomo, No. 2003-0509, 2004 WL 4978831, at *2 (B.P.A.I. 2004).

1. Claim Construction

"Analysis begins with a key legal question — what is the invention claimed?" *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 1567, 1 USPQ2d 1593, 1597 (Fed. Cir. 1987). In answering the question "[t]he Patent and Trademark Office (PTO) must consider all claim limitations when determining patentability of an invention over the prior art." *In re Lowry*, 32 F.3d 1579, 1582, 32 USPQ2d 1031, 1034 (Fed. Cir. 1994) (citing *In re Gulack*, 703 F.2d 1381, 1385, 217 USPQ 401, 403-04 (Fed. Cir. 1983)).

¹ We refer to and rely on the appellants' "Second Appeal Brief," in lieu of their "Appeal Brief," because the latter was rendered moot by a subsequent Office action filed June

Here, claim 23 recites in pertinent part the following limitations:

a set of objects for object presence detection internal to said container, such that an object of said set of objects is operable to modify said transmitted signal energy of a selected frequency to generate said received signal energy of said selected frequency. . . .

Claim 42 includes similar limitations. Considering all the limitations, both independent claims require that an object such as a tape cartridge modifies an interrogation signal transmitted at a selected frequency to generate a return signal having the same frequency.

2. Obviousness Determination

"Having determined what subject matter is being claimed, the next inquiry is whether the subject matter would have been obvious." *Ex Parte Massingill*, No. 2003-0506, 2004 WL 1646421, at *3 (B.P.A.I 2004). "In rejecting claims under 35 U.S.C. Section 103, the examiner bears the initial burden of presenting a *prima facie* case of obviousness." *In re Rijckaert*, 9 F.3d 1531, 1532, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993) (citing *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992)). "A *prima facie* case of obviousness is established when the teachings from the prior art itself would appear to have suggested the claimed subject matter to a person of ordinary skill in the art." *In re Bell*, 991 F.2d 781, 783, 30, 2005. The former brief will not be considered in deciding this appeal.

26 USPQ2d 1529, 1531 (Fed. Cir. 1993) (quoting *In re Rinehart*, 531 F.2d 1048, 1051, 189 USPQ 143, 147 (CCPA 1976)).

Here, in Bowers "[a]n article inventory control system for articles . . . uses RFID tags attached to each article. Each tag has a unique identification or serial number for identifying the individual article." (Abs. at ll. 1-4.) An "'article' includes . . . items which are typically found in a library, such as **videos**, CD-ROMS, **cassettes**, newspapers or the like." (Col. 7, ll. 2-5 (emphases added)). "FIG. 2 is a block diagram schematic of an RFID tag suitable for use on articles circulated by the library. . . ." (Col. 5, ll. 59-60.) "The tag 54 includes a passive resonant radio frequency (RF) circuit 56 for use in detecting when the tag 54 is within a zone monitored by a reader or interrogator, as is well-known in the art. One well-known type of circuit 56 has a coil antenna 58 and a capacitor 60 which together form a resonant circuit with a predetermined resonant frequency i.e. the selected radio frequency." (Col. 8, ll. 36-43.) "Furthermore, the tag 54 includes an integrated circuit (IC) 62 for providing 'intelligence' to the tag 54. The IC 62 is connected to the circuit 56. The IC 62 includes a programmable memory 64, such as a 64 bit memory, for storing bits of identification data." (*Id.* at ll. 44-49.)

"The IC 62 outputs a data stream comprised of the 64 bits of stored data when sufficient power is applied thereto." (*Id.* at ll. 54-55.) "[T]he data stream creates a series of data pulses by switching an extra capacitor (not shown) across the coil antenna 58 for the duration of the data pulses. This changes the resonant frequency of the RF circuit 56, detuning it from the operational frequency. Thus, instead of the RF circuit 56 returning a simple response signal, it returns a signal containing a packet of preprogrammed information." (*Id.* at ll. 65-63.)

The examiner asserts, "The frequency shifting of the return signal in Bowers (col. 8 lines 54-60) reads on the argued limitation." (Examiner's Answer at 12.) Such a shifting of frequency, however, is opposite the aforementioned limitation which requires a tag on an object to generate a received signal having the same frequency as that of the signal that activates the tag.

The examiner does not allege, let alone show, that the addition of Francis, Maloney, Lastinger, or Greene cures the aforementioned deficiency of Bowers. Absent a teaching or suggestion of an object such as a tape cartridge that modifies a signal transmitted at a selected frequency to generate a received signal having the same frequency, we are unpersuaded of a *prima facie* case of obviousness. Therefore, we

B. CLAIMS 33-37, 51, AND 52

"When multiple claims subject to the same ground of rejection are argued as a group by appellant, the Board may select a single claim from the group of claims that are argued together to decide the appeal with respect to the group of claims as to the ground of rejection on the basis of the selected claim alone. Notwithstanding any other provision of this paragraph, the failure of appellant to separately argue claims which appellant has grouped together shall constitute a waiver of any argument that the Board must consider the patentability of any grouped claim separately." 37 C.F.R.

§ 41.37(c)(1)(vii) (2005).

Here, the appellants argue claims 33-37, which are subject to the same ground of rejection, as a group. (Appeal Br. at 10-11.) We select claim 33 as the sole claim on which to decide the appeal of the group. "With this representation in mind, rather than reiterate the positions of the examiner or the appellants *in toto*, we focus on the following three points of contention therebetween," *Massingill*, at *2:

- objects responding to the same frequency
- shielding the interior of a container
- determining the number of members within the container.

1. Objects Responding to the Same Frequency

The examiner finds, "Bowers et al. teaches that each of the objects has a radio frequency tag attach to it (col. 2 lines 25-28).

The object to which the RF tag is attached includes books, video tapes, CD's, and audio tapes (col. 6 lines 26-49) and each tag respond to a particular frequency (col. col. 8 lines 36-43)." (Examiner's Answer at 12.) The appellants argue that "the cited passages at columns 8 and 12 do not teach or suggest a 'subset comprises a plurality of objects responsive to said selected frequency' because the passages do not teach more than one object responsive to any given frequency. See *Bowers* at Col. 8, lines 36-43 and Col. 12, lines 50-65." (App. Br. at 11.)

a. Claim Construction

"[T]he PTO gives claims their 'broadest reasonable interpretation.'" *In re Bigio*, 381 F.3d 1320, 1324, 72 USPQ2d 1209, 1211 (Fed. Cir. 2004) (quoting *In re Hyatt*, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1668 (Fed. Cir. 2000)). "Moreover, limitations are not to be read into the claims from the specification." *In re Van Geuns*, 988 F.2d 1181, 1184, 26 USPQ2d 1057, 1059 (Fed. Cir. 1993) (citing *In re Zletz*, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989)).

Here, claim 33 recites in pertinent part the following limitations: "a plurality of said objects responsive to said selected frequency. . . ." Giving the representative claim the broadest, reasonable construction, the limitations require that plural objects modify an interrogation signal transmitted at a frequency to generate a return signal. Unlike claims 23 and 42, however, claim 33 does not require that the return signal have the same frequency as the interrogation signal.

b. Obviousness Determination

The question of obviousness is "based on underlying factual determinations including . . . what th[e] prior art teaches explicitly and inherently. . . ." *In re Zurko*, 258 F.3d 1379, 1383, 59 USPQ2d 1693, 1696 (Fed. Cir. 2001) (citing *Graham v. John Deere Co.*, 383 U.S. 1, 17-18, 148 USPQ 459, 467 (1966); *In re Dembiczak*, 175 F.3d 994, 998, 50 USPQ2d 1614, 1616 (Fed. Cir. 1999); *In re Napier*, 55 F.3d 610, 613, 34 USPQ2d 1782, 1784 (Fed. Cir. 1995)).

Here, as mentioned regarding claims 23, 24, 26-32, 42, and 44-50, Bowers attaches an RFID tag to each article 22 in its library. As also aforementioned, in response to receipt of an interrogation signal, which is necessarily transmitted at a frequency, each article's tag generates a return signal containing a packet of

Br. at 11), however, that each tag responds to a different interrogation frequency. To the contrary, we find that the tags respond to the same interrogation frequency. Having each tag respond to the same interrogation frequency, for example, enables a plurality of articles in a collection bin 112 to be interrogated "all at once." (Col. 13, l. 21.)

2. Shielding the Interior of a Container

The examiner finds, "Bowers et al. teaches a method for identifying a subset of objects within a set of objects in a container (col. 12 lines 50-65)," (Examiner's Answer at 6), and "Francis et al. in an art related object tracking system teaches the use of electromagnetic shielding to prevent reading of the by extraneous source (col. 9 lines 49-65)." (*Id.* at 7.) He makes the following additional findings.

It would have been obvious to one of ordinary skill in the art to shield the interior of the container from extraneous external signals in Bowers et al. as evidenced by Francis et al. because Bowers et al. suggests interrogating objects in a container and Francis et al. teaches the use of electromagnetic shielding to prevent reading of the by extraneous source and further limit the interference from other electromagnetic sources.

(*Id.*) The appellants argue that "the Examiner cites RF shielding in general, but does not demonstrate that the cited art teaches or suggests, 'shielding the interior of said container' as recited by claim 33. . . ." (Reply Br. at 7.)

a. Claim Construction

Claim 33 further recites in pertinent part the following limitations: "shielding the interior of said container from extraneous external signals." Giving the representative claim the broadest, reasonable construction, the limitations require shielding the interior of a container from external signals.

b. Obviousness Determination

"Non-obviousness cannot be established by attacking references individually where the rejection is based upon the teachings of a combination of references." *In re Merck & Co.*, 800 F.2d 1091, 1097, 231 USPQ 375, 380 (Fed. Cir. 1986) (citing *In re Keller*, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981)). In determining obviousness, furthermore, a reference "must be read, not in isolation, but for what it fairly teaches in combination with the prior art as a whole." *Id.*, *Id.* Furthermore, "[t]he presence or absence of a motivation to combine references in an obviousness determination is a pure question of fact." *In re Gartside*, 203 F.3d 1305, 1316, 53 USPQ2d 1769, 1776 (Fed. Cir. 2000) (citing *In re Dembiczak*, 175 F.3d 994, 1000, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999)). A suggestion to combine teachings from the prior art "may be found in explicit or implicit teachings within the references themselves, from the ordinary knowledge of those skilled in the art, or from the nature of the problem to be solved." *WMS Gaming Inc. v. Int'l Game Tech.*, 184 F.3d 1339, 1355,

51 USPQ2d 1385, 1397 (Fed. Cir. 1999) (citing *In re Rouffet*, 149 F.3d 1350, 1355, 47 USPQ2d 1453, 1456 (Fed. Cir. 1998)).

Here, Bower's "library includes a plurality of 'smart' article return areas or book drops." (Col. 7, ll. 9-10.) "The 'smart' book drops . . . interrogate the articles 22 as they pass into the book drop and read, record and process information about their identity. FIG. 1 shows one smart exterior article return area or book drop 32 and three smart interior article return areas or book drops 34." (*Id.* at ll. 13-18.) We find that these smart book drops constitute containers.

Besides the interrogators in the smart boxes, interrogators are employed throughout the library. For example, "the library 10 includes one or more pairs of 'smart' pedestals 36." (*Id.* at ll. 41-42.) "A pair of 'smart pedestals' as described, are pedestal-configured devices which contain interrogators capable of communicating with RFID tags. A pair of smart pedestals 36 reads RFID tags when tagged articles 22 are within a predesignated zone between the pedestals 36." (*Id.* at ll. 42-47.) Furthermore, "the library includes a patron self-checkout station 50 for allowing library patrons to check out articles 22 for removal from the premises. The checkout station 50 includes a fixed interrogator 43, and . . . portable RFID scanners 42, both of which are used for identifying articles 22 presented at the checkout station 50." (Col. 8, ll. 12-18.)

Because an object of Bowers' inventory control system is to determine whether articles are in the proper location, (see col. 1, ll. 38-41), we find that having more than one interrogator record the location of the same article would have lead to ambiguity. Figure 1 of the reference, for example, shows that the exterior book drop 32 is near the smart pedestals 36 and the fixed interrogators 43 and portable scanners 42 of the checkout station 50. If an article in the book drop 32 was scanned by interrogators of the smart pedestals 36, the fixed interrogators 43, and the portable scanners 42, besides being scanned by the interrogator of the book drop, the system might identify the article as simultaneously being located in the book drop, between the pedestals, and in the checkout area, which would have lead to uncertainty as to the precise location of the article.

"An object tracking and management system and method using radio-frequency identification ('RFID') tags is [similarly] disclosed," (abs., ll. 1-3), by Francis. As aforementioned, the appellants admit that Francis teaches "RF shielding. . . ." (Reply Br. at 7.) More specifically, "[a]n RF shield 410, such as a metal plate, metal screen or other RF reflective or absorbant [sic] material, is positioned between," (col. 9, ll. 53-55), "two RFID tags 420 and 430 spaced a short distance apart," (*id.* at ll. 52-53), to "ensure that only one tag can be read at any given position." (*Id.* at ll. 63-64.)

We find that using such an RF shield to enclose Bowers' exterior book drop 32 would have prevented interrogators and scanners outside the book drop from recording the location of articles placed in the drop, which would have eliminated the aforementioned ambiguity and uncertainty. When teachings of Bowers and Francis were so combined, we further find that these would have suggested shielding the interior of a container from external signals. Therefore, we affirm the rejection of claim 33 and of claims 34-37, which fall therewith.

Rather than arguing the rejection of claim 52 separately, the appellants rely on their aforementioned arguments. (Appeal Br. at 14) Unpersuaded by these arguments, we also affirm the rejection of this claim.

3. Determining the Number of Members within the Container

The examiner finds, "Bowers et al. teaches producing a report based on the analysis of the content of the container (col. 14 lines 4-10) and the report shows the number of members in a subset as shown in figure 7, the subset is based on the location of the items." (Examiner's Answer at 8.) The appellants argue that "the cited shelf report of figure 7 of *Bowers* does not provide a 'number of members . . . present within said container,' contrary to the Examiner's assertion. The content provided in the

shelving report is not enough by itself to teach or suggest the above-quoted feature."

(Reply Br. at 8.)

a. Claim Construction

"Claims in dependent form shall be construed to include all the limitations of the claim incorporated by reference into the dependent claim." 37 C.F.R. § 1.75 (2006). Here, claim 51 recites in pertinent part the following limitations: "[t]he method of claim 33 wherein said analysis determines the number of members of said subset present within said container." For its part, claim 33 recites in pertinent part the following limitations: [a] method for identifying a subset of objects within a set of objects in a container, said method comprising . . . analyzing and processing said received signal. . . ."² The independent claim does not require the method be performed exclusively by a computer; the claim permits the method to be performed by a human in concert with a computer. Giving the dependent claim the broadest, reasonable construction, the limitations merely require counting the number of objects in the container.

² A claim is indefinite "where the language 'said lever' appears in a dependent claim where no such 'lever' has been previously recited in a parent claim to that dependent claim" *Ex parte Moelands*, 3 USPQ2d 1474, 1476 (B.P.A.I. 1987). Here, although claim 51 includes the language "said analysis," no such "analysis" has been previously recited in claim 33. Being "basically a board of review," *Ex parte Gambogi*, 62 USPQ2d 1209, 1211 (B.P.A.I. 2001), however, we leave the question of indefiniteness to the examiner and the appellants.

b. Obviousness Determination

Bowers teaches that "data generated by the exterior book drop 32 are used by [a] database 66 to create a bin contents report and a reshelving report." (Col. 13, ll. 52-54.) "FIG. 7 is a sample of a reshelving report 116 generated by five articles 22 in [the] collection bin 112," (col. 14, ll. 4-5), of the exterior book drop 32. "The report 116 provides a listing of articles 22 ordered according to shelf location. The shelf location may be the row of shelves which contains the respective article, or any other designating information to assist [an] employee in returning the articles 22, such as floor/shelf location." (*Id.* at ll. 5-10.) Looking at the shelving report 116, we find that the employee would have counted the total number of objects in the exterior book drop 32 or the number to be reshelved to each shelf location. Therefore, we affirm the rejection of claim 51.


III. CONCLUSION

In summary, the rejections of claims 23, 24, 26-32, 42, and 44-50 under § 103(a) are reversed. The rejections of claims 33-37, 51, and 52 under § 103(a), however, are affirmed.

"Any arguments or authorities not included in the brief or a reply brief filed pursuant to [37 C.F.R.] § 41.41 will be refused consideration by the Board, unless good

cause is shown." 37 C.F.R. § 41.37(c)(1)(vii). Accordingly, our affirmance is based only on the arguments made in the briefs. Any arguments or authorities omitted therefrom are neither before us nor at issue but are considered waived. *Cf. In re Watts*, 354 F.3d 1362, 1367, 69 USPQ2d 1453, 1457 (Fed. Cir. 2004) ("[I]t is important that the applicant challenging a decision not be permitted to raise arguments on appeal that were not presented to the Board.") No time for taking any action connected with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).


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